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(71) Applicant *(for all designated States except US)*: **TOKYO ELECTRON LIMITED** [JP/JP]; TBS Broadcast Center, 3-6 Akasaka 5-chome, Minato-ku, Tokyo 107-8481 (JP).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: **LUDVIKSSON, Audunn** [IS/US]; 11580 East Desert Holly Drive, Scottsdale, AZ 85255 (US).

(74) Agent: **CASEY, Michael, R.**; Oblon, Spivak, McClelland, Maier & Neustadt, P.C., 1940 Duke Street, Alexandria, VA 22314 (US).

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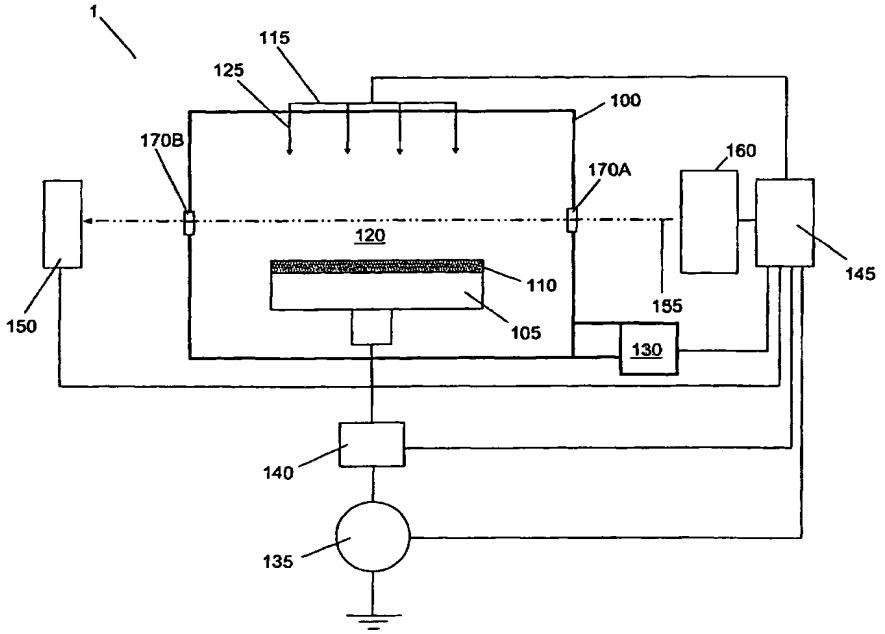
(54) Title: PROCESS MONITORING USING INFRARED OPTICAL DIAGNOSTICS



(57) Abstract: A method and apparatus for real-time monitoring of the substrate and the gaseous process environment in a semiconductor process step is described. The method uses infrared spectroscopy for in-situ analysis of gaseous molecular species in the process region and characterization of adsorbed chemical species on a substrate. The process monitoring can be applied to endpoint- and fault detection in etching and deposition processes, in addition to chamber cleaning and chamber condition steps.

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